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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,614	09/30/2003	Adam Lomas	15636.12	4190
22913	7590	06/15/2005	EXAMINER	
WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			GARBER, CHARLES D	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/674,614

Applicant(s)

LOMAS, ADAM

Examiner

Charles D. Garber

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 17-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-14 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01/16/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Group I, claims 1-16 in the reply filed on 05/25/2005 is acknowledged.

### ***Drawings***

The drawings are objected to because handwritten text is not sufficiently legible and figure 2 top margin is too narrow. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 11, 13 and 12, 14 identify "first internal setting" and "second internal setting" respectively. The terminology is not disclosed in the specification.

### ***Claim Objections***

Claim 10 is objected to because of the following informalities: "rang" should be spelled --range-- in the fourteenth line of the claim, "l v l" should be spelled --level-- in the fifteenth line of the claim, and "th" should be spelled --the-- in the sixteenth line of the claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5, 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heidecke (US Patent 6,679,115) in view of Lippmann et al. (US Patent 5,485,740).

Regarding claims 1 and 10, Heidecke discloses a level measurement system (title) with a current loop 12, 13. However, Heidecke does not teach a calibration method as in the instant invention.

Lippmann (US Patent 5,485,740) teaches a method of calibration for gauging fuel in an automotive tank including an electronic circuit (loop) 26. Steps 56 and 58 in figure 3 disclose inherently reading or outputting a first level corresponding to "SENDER VALUE", inputting the value to the decision block 56 and therein determining whether said first output level is within a first range (between zero and "MAXIMUM EMPTY LEVEL") and establishing a first level setting corresponding to said first output level if said first output level is within range (step 58 – "SET EMPTY LEVEL TO CURRENT SENDER VALUE") (read column 2 line 55 to column 3 line 10).

Likewise, steps 36 and 38 in figure 2 teach inherently reading or outputting a second level corresponding to "SENDER VALUE", inputting the value to the decision block 36 and therein determining whether said first output level is within a second range (between "MINIMUM FULL VALUE" and the physical constraints of the tank) and establishing a second level setting corresponding to said second output level if said second output level is within range (step 38 – "FULL = SENDER VALUE") (read column 3 lines 36-60)

Lippmann then uses these values to recalculate the gauge curve or transfer function (inherently requiring their output to the recalculation process) for displaying the

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tank fill status calibrated to the new limits. The process is carried out on a microprocessor included with electronic circuit 26 (column 3 lines 15-22). The process is done because liquid storage tanks may be dimensionally unstable and originally set values for empty and full may be inaccurate. The process learns the proper levels by analyzing changes in the sense value that diverge from the earlier set values (column 1 line 26 to column 2 line 24).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to calibrate the level output signal as in the instant invention to correct for inaccurately set empty and full sensed value on account of tank dimensional variations.

As for claims 2 and 3, neither Lippman nor Heidecke disclose if the low and high levels correspond to low and high or high and low signal values. However, Examiner takes Official Notice that both alternatives are widely known in the art and it would have been obvious to one having ordinary skill in the art at the time of the invention to select either alternative. Considerations for selecting low current (or voltage) corresponding to low fluid level might be that more of the time the tank is at a low level and this would reduce power consumption or electric component wear. It would also make conversion or corrections to measured values simpler by not having to deal with an inverse relationship.

As for claim 4, Heidecke discloses a 4-20 mA current loop (column 5 lines 30-35).

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As for claim 5, the references do not expressly teach the first range between 2-6 mA and the second range between 11-22 mA. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made for the first range to be between 2-6 mA and the second range between 11-22 mA, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As for claims 11 and 12, internal setting in device 1 inherently are the basis for current levels developed in the 4-20 mA current loop in Heidecke.

Claims 13 and 14 appear to correspond to claim 1 limitations related to outputting 1<sup>st</sup> and 2<sup>nd</sup> current levels and inputting the current output level corresponding to said levels already discussed above.

***Allowable Subject Matter***

Claims 6, 7, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15, 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

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Regarding claims 6 and 15, the references do not disclose or suggest the further step of setting the first current level setting to a first default value if the first current reading is out of range.

Claims 7 and 16 depending from allowable claims 6 and 15 respectively are allowable for the same reason.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Garber whose telephone number is (571) 272-2194. The examiner can normally be reached on 6:30 a.m. to 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdg



**CHARLES GARBER  
PRIMARY EXAMINER**